

DESCRIPTION

This work shall consist of furnishing, installing, maintaining, and moving construction signs, as shown in the contract documents, or as directed by the ENGINEER, and in accordance with the NYSDOT Manual of Uniform Traffic Control Devices (MUTCD).

MATERIALS

Rigid sign panels may be aluminum, fiberglass, galvanized steel, or plywood, except that sign panels placed on Type III Breakaway Barricades shall be aluminum.

On rigid panels, all colors of sign faces, except orange, shall be reflectorized and meet the requirements of NYSDOT Standard Specifications, Section 730-05 Reflective Sheeting, Materials Designation 730-05.02 (Class B), latest revision. When orange signs on rigid panels are specified they shall be fabricated using reflectorized fluorescent orange colored sheeting meeting NYSDOT Standard Specifications, Materials Designation 730-05.04 (Class D), latest revision.

Flexible sign panels shall be a solid orange colored, durable elastomeric material. Flexible sign panels fabricated from mesh will not be allowed.

Flexible signs shall be orange in color and a reasonable visual match to Munsell Book Notation 2.5 YR 5.5/14. The orange color flexible panels shall be approved by the ENGINEER prior to use. Flexible sign panels need not be reflectorized.

Black sign characters shall be non-reflective, and shall conform to the requirements of NYSDOT Standard Specifications, Section 730-13 Reflectorized Sheeting Sign Characters (Type V), latest revision.

White sign characters shall meet the requirements of either NYSDOT Standard Specifications, Section 730-12 Reflectorized Sheeting Sign Characters (Type IV) or Section 730-13 Reflectorized Sheeting Sign Characters (Type V) latest revision.

Covers used to inactivate unneeded signs shall match the size and shape of the sign and shall cover the entire sign face. The cover material shall be a heavy duty, porous, opaque cloth, dark green, brown, black or white in color. Materials such as plastic, polyethylene, burlap, and filter fabric, will not be allowed for use as sign covers. The sign cover shall be attached to the sign in a secure manner using straps or other means approved by the ENGINEER. The finished sign cover shall be neat in appearance with all fasteners secured on the backside of the sign face.

CONSTRUCTION DETAILS

The applicable requirements of NYSDOT Standard Specifications, Section 619 Maintenance and Protection of Traffic, latest revision, shall apply.

The CONTRACTOR shall furnish and erect appropriate construction signs to adequately and safely inform and direct the motorist and to satisfy legal requirements. All signs shall indicate actual conditions, and shall be removed and/or relocated, or changed immediately as required in the contract documents and as directed by the ENGINEER.

All signs shall be the property of the CONTRACTOR and shall be maintained in good condition for the duration of the contract. All signs shall be removed from the work site when the contract is accepted.

Sign sizes and details shall conform to the standard sheet, MUTCD, and the contract documents. The number of signs indicated on the standard sheets, in the MUTCD, and in the contract documents are a minimum number and the CONTRACTOR shall have an adequate quantity of these signs available for immediate use, as required. The ENGINEER may order that additional signs be used.

All wood supports, and backs of plywood sign panels shall be painted with two coats of white paint.

All signs shall be kept clean, mounted at the required height on adequate supports, and placed in the proper position and alignment so as to give maximum visibility. In general, sign orientation shall conform to the MUTCD, Section 201.5, subdivision (g), Orientation except that the vertical and horizontal mounting angle tolerance shall be plus or minus 5 degrees, as appropriate.

Signs that are erected and removed or relocated on a daily basis, or that must be frequently relocated to adjust to the location of construction operations, may be mounted on portable sign supports. Signs that are to remain at a fixed location may be supported on posts mounted in the ground. The type of sign supports used shall be selected by the CONTRACTOR, subject to the approval of the ENGINEER. If rigid diagonal bracing is used, the high end of the bracing shall face away from approaching traffic. All supports, except those located beyond the deflection distances of guide rail or temporary barrier, or otherwise protected against impact by errant vehicles, shall meet the following safety requirements for portable and fixed supports.

1. **PORTABLE SUPPORTS.** Ballast used to stabilize supports shall be bagged sand or other suitable material approved by the ENGINEER, and shall be located at ground level. Portable supports shall comply with one of the following:
 - a. Manufactured portable supports designed for the display of signs in temporary traffic areas.
 - b. Wood supports fabricated by the CONTRACTOR, with a maximum member size of 50mm by 150 mm.
 - c. Metal supports fabricated by the CONTRACTOR, using square perforated or unperforated steel tube, maximum size 50 mm, conforming to ASTM A446

Grade A.

2. **FIXED SUPPORTS.** If stakes are used to attach the lower end of diagonal braces to the ground, they shall not protrude more than 100 mm above the ground surface. Fixed supports shall comply with one of the following:
 - a. Type A Sign Supports meeting the requirements of NYSDOT Standard Specifications, Section 730-24, latest revision, and the applicable Materials Details may be used for sign sizes appropriate for those supports.
 - b. Sign posts and footings meeting the requirements of NYSDOT Standard Specifications, Section 730-20, latest revision, and the applicable Standard Sheets may be used for sign sizes appropriate for those supports.
 - c. Wood posts, excluding any synthetic or composite wood product, may be used as follows:
 1. Wood Posts up to 100 mm by 100 mm.
 2. Wood posts up to 150 mm by 200 mm having 2, 80 mm diameter holes drilled in the direction perpendicular to the flow of traffic and located 100 mm and 450 mm above ground level. These holes shall be filled with flexible caulking.
 3. Wood posts larger than 150 mm by 200 mm shall not be used.
 4. No more than two posts of acceptable sizes as listed above shall be located within a single 2.1 m width.
 - d. Any other support that the CONTRACTOR may select, upon submission of documentation to the Engineer demonstrating that the post selected meets the current AASHTO and NCHRP criteria for impact performance of Highway Sign Supports.

Supports for construction signs shielded by barrier or guide rail, and located beyond the deflection distance described below, do not have to conform to the above safety.

GUIDE RAIL & CONCRETE BARRIER DEFLECTION DISTANCES

GUIDE RAIL TYPE	POST SPACING	DEFLECTION DISTANCES
Cable	4880 mm	3350 mm
	3660 mm	2900 mm
	2440 mm	2440 mm
	1220 mm	2130 mm
Corrugated Beam (Weak Post)	3810 mm	2440 mm
	1900 mm	1830 mm
	1270 mm	1520 mm
Corrugated Beam (Heavy Post)	1900 mm	1220 mm
	950 mm	610 mm
Box Beam	1830 mm	1520 mm
	910 mm	1220 mm
Concrete Barrier	NOT APPLICABLE	0 mm

Flexible signs will only be allowed for short-term, daytime use, for portable type signs that are deployed for use on a daily basis. They may not be used overnight, or for signs mounted on supports installed in the ground, or on portable supports that are left in place continuously for more than one work day. All flexible sign panels shall be mounted on supports with adequate bracing, so as to minimize flutter and to support the intended shape of the sign.

Intermixing reflective fluorescent orange colored signs with non-flourescent orange colored flexible signs within the same series of signs shall not be allowed.

All construction signs shall be mounted in accordance with the MUTCD. Signs on rigid panels shall be mounted at a minimum height of 1.5 m. Flexible sign panels shall be mounted at a minimum height of 1.5 m, or optionally as low as 0.3 m when the following conditions are met:

1. On two lane, two-way roadways and four lane divided highways, when signs are placed on the left and the right sides of the roadway.
2. Where there will be no parked vehicles to obstruct the view.
3. When at least one advance work zone warning sign, mounted at a height of 1.5 m is located upstream of any flexible signs to alert motorists that they are entering a construction zone.
4. When the ENGINEER determines that the lower mounting height does not adversely affect the motorists' visibility of the sign.

If signs are temporarily covered, the cover shall be attached in a manner that completely covers the face of the sign. No adhesive shall be applied to the face of the sign, and the method of attaching the cover shall not damage the sign face. Sign covers shall be secured firmly to prevent dislodging and shall be maintained in good condition to present a neat appearance and minimize distraction to motorists traveling through the work zone. Sign covers shall contain no wordings or images. Damaged covers which are determined by the ENGINEER to be no longer effective shall be replaced.

On limited access highways, when the normal legal speed limit is 80 km/h and higher, the contractor shall have available at the project site, sufficient warning signs as described below, to inform oncoming traffic of a stopped, or very slow traffic condition. These signs shall be placed, moved, covered, maintained and removed in a manner directed by the ENGINEER.

The sign shall measure 1.2 m x 1.2 m, and letters shall be 175 mm Series D, similar to a W8-10, except it shall read “BE PREPARED TO STOP”. The background color shall be fluorescent orange (NYSDOT Standard Specifications, Materials Designation 730-05.04, Class D, latest revision). Each sign shall be mounted on a suitable portable support, and each shall be equipped with a pair of warning flags conforming to the requirements of the MUTCD, Section 294.2. Both sides of the approach shall be signed unless the median is too narrow, or if there are fewer than three lanes in the approach.

The sign shall be posed approximately 457 m upstream of the end of the queue, and when the end of the queue moves, the sign shall also be moved to maintain that spacing. If the resulting location places the sign upstream of the first warning sign for the project, the contractor shall also furnish and place an appropriate general work zone sign. The work zone sign shall be placed approximately 304 m in advance of the “BE PREPARED TO STOP” sign.

Whenever a reduced regulatory speed limit for a highway work zone has been legally established by any means, the R-2 speed limit signs and, if used, the R2-10 speed zone ahead signs for reduced speed shall be supplemented by a work zone warning panel as described below.

The panels shall be the same width as the speed limit sign they are supplementing. They shall be 150 mm high with 75 mm Series B lettering when used with size B speed limit signs; 200 mm high with 100 mm Series B lettering when used with size C speed limit signs; 300 mm high with 150 mm Series B lettering when used with size D speed limit signs and 400 mm high with 200 mm Series B lettering when used with size E speed limit signs. The panel shall read ‘WORK ZONE’ with black legend and fluorescent orange background (NYSDOT Standard Specifications, Materials Designation 730-05.04, Class D, latest revision).

These panels shall be placed on the same posts and immediately above the speed limit

signs.

METHOD OF MEASUREMENT

Payment shall be made at the lump sum price bid.

BASIS OF PAYMENT

The lump sum price bid shall include the cost of labor, equipment and material, necessary to erect, remove, relocate, protect, maintain, store or replace any construction signs required to properly sign the contract. The lump sum price bid shall also include the cost of repairing or replacing reflectorized signs, when the ENGINEER determines that the reflective sheeting material no longer meets the specifications.

No payment will be made under Section 619 Basic Maintenance and Protection of Traffic for each calendar day during which there are substantial deficiencies in compliance with the requirements of this specification, as determined by the ENGINEER. The amount of each calendar day non-payment will be determined by dividing the lump sum bid by the number of calendar days between the date the CONTRACTOR commences work and the date of contract completion, as designated in the contract proposal, without regard to any extension of time.

In addition, liquidated damages will be assessed at the rate shown in NYSDOT Standard Specifications, Table 108-1 of Section 108-03, latest revision, for each calendar day or part thereof that a cited deficiency, which results in non-payment, is not corrected, or is permitted to recur.

Partial payments will be made. Fifty (50) percent of the lump sum price will be paid when ten (10) percent of the contract work has been completed. The remaining fifty (50) percent will be paid proportionally in accordance with the total contract work completed, beginning with the estimate following the initial payment on this item.

Payment will be made under:

<u>Item No.</u>	<u>Item</u>	<u>Pay Unit</u>
619.50M	Construction Signs	LS